

LAMBERT

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Hospitals and medical education

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# HOSPITALS AND MEDICAL EDUCATION

BY

SAMUEL W. LAMBERT, M. D.

Dean of the Medical Faculty

NOVEMBER 25, 1908

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TO DR. JAMES W. McLANE, MESSRS. W. IRVING CLARK and  
W. EMLÉN ROOSEVELT, Committee in Behalf of the  
Roosevelt Hospital, and

MESSRS. SETH LOW, W. BAYARD CUTTING and DR. T. M.  
CHEESMAN, Committee in Behalf of Columbia University.

GENTLEMEN—

Your appointment as Committees of your respective Boards was authorized by the following resolutions :

Resolutions of the Board of Trustees of Roosevelt Hospital, passed January 28th, 1908 :

RESOLVED, That a Committee of three, of which the President of the Hospital shall be one, be appointed by the President to consider, in conjunction with any committee that may be appointed for a similar purpose by the Trustees of Columbia College (University), the general subject of methods of clinical instruction in the Hospital.

RESOLVED, That the same Committee of this Board be further requested to consider plans for the development and extension both of the existing buildings and the construction of new buildings on the vacant land owned by the Hospital on the west of the present buildings.

Resolution of the Board of Trustees of Columbia University, passed on February 3d, 1908 :

RESOLVED, That a select Committee of Three be appointed by the Chairman to confer with the Committee appointed by the Trustees of Roosevelt Hospital in reference to extending the clinical facilities of the Hospital in connection with the College of Physicians and Surgeons.

On April 10th, 1908, I sent you a statement of the reasons for my asking that committees be appointed by your respective Boards to confer on the question of the nearer relation of the Roosevelt Hospital and the College of Physicians and Surgeons. I presented then as I understood them the advantages of increasing the teaching in the Hospital both to the Hospital and the College.

The subject has been thoroughly canvassed during the past summer and I should like to present my present views on the whole subject again. In the Spring I suggested that \$1,000,000 would do much to accomplish the result desired, but my investigations having forced me to conclude that the question is a much larger and broader one and the scheme has developed into one for enlarging Roosevelt Hospital, for increasing its teaching and research functions and for making it second to none in these particulars. As a result of this study the sum of money required for the immediate needs of the hospital has increased to over \$6,000,000 and the completed plan calls for a final expenditure of over \$16,600,000. The result however, will, I am sure, appeal to your Committees as an ideal to be hoped for and to be worked for. In the desire to assist you to present this matter to any prospective benefactors of the Hospital in the form of a thorough and feasible plan which will look to a gradual but continuous and practical development of the Hospital, I beg to submit the following:

During the past five years there has been created in New York a great interest in the hospital question in the City. Several Committees have been at work studying the various features of the problems of present needs and future development. Two reports, destined to be of far reaching influence, have been published within the past six months. Both reports take a broad view of the whole situation and present conclusions based upon scientific study and business principles. One of these was issued by the Commission on Public Hospitals appointed by his Honor Mayor McClellan, to consider the organization of the Municipal Hospitals. This report deals largely with the situation in Brooklyn, Richmond County and with the hospitals on Blackwell's Island. So far as new hospitals in Manhattan are concerned its conclusions do not materially differ from those of the second report, which are detailed below. Of the hospital needs of the west side of Manhattan the report says: "in the relatively near future a new general hospital with capacity for several hundred beds should be constructed for the middle west side of the City in the Borough of Manhattan." The second report develops the question more elaborately and forms report No. 101 of the State Charities Aid Association and presents an investigation



concerning the need both present and future for new hospital facilities in the City. This report outlines a general scheme for hospital extension which it is hoped will be capable of indefinite expansion and application to any possible demands which may arise in the future. This co-ordinated scheme of hospital relief demands three kinds of hospitals for acute diseases classified according to size into

1. *General hospitals*, or hospitals of 1,000 to 1,500 beds.
2. *Local hospitals*, or hospitals of 100 to 200 beds.
3. *Emergency relief stations*, or small ambulance and dispensary hospitals of 6 to 8 beds.

The scheme further adds hospitals for convalescents, hospitals for incurables, hospitals for special diseases, such as maternity hospitals and those for contagious diseases (including tuberculosis), and there is suggested a plan for coöperative home care of patients suffering from lesser ailments and of those convalescing from acute diseases.

If this proposed scheme of hospital development be applied to the present situation in New York, and particularly to the present position of Roosevelt Hospital as a part of the general hospital situation, some very interesting facts are manifest. The report suggests that only two general hospitals (1,500 beds) will be needed by the year 1920. One of these is to be the new Bellevue and the other a "pavilion" hospital\* to be built on Blackwell's Island. The only other hospital of any size suggested for Manhattan is a local hospital of 100 beds to be developed (by 1915) from an emergency relief station (to be built at once) in the vicinity of 40th or 45th Street and 9th or 10th Avenue. This latter suggestion is to meet the urgent deficiency in hospital bed facility, both present and prospective, which exists in the middle west section of the city as represented by the present ambulance district of Roosevelt Hospital.

The chart showing the present bed capacity, the present proper bed capacity and the beds needed in 1920, prepared by Mr. Philip P. Jacobs and printed on pages 40 and 41 of this

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\* In this paper the plan of hospital construction of a number of isolated one or two-story buildings is called a "pavilion" hospital, and the plan of a compact building containing four or more stories is called a "barrack" hospital. Roosevelt Hospital presents both kinds of construction

report, emphasizes this striking want in the Roosevelt sphere of work. Accepting the premises and calculations of the report as a working hypothesis, the three ambulance districts in greatest need of beds are in order of that need as follows:

PRESENT LACK OF BEDS, 1905	PROBABLE LACK OF BEDS IN 1920
Gouverneur district . . . . . 283	J. Hood Wright district . . . . . 781
J. Hood Wright district . . . . . 254	Gouverneur district . . . . . 360
Roosevelt district . . . . . 155	Roosevelt district . . . . . 357
(Omitting the private beds of St. Elizabeth)	(Known additions to present facilities are included in this estimate)

The possible additions to the J. Hood Wright Hospital and to St. Luke's in the same district leave little doubt but that the deficiency for that district in hospital beds will be cared for. There will remain in 1920 the same two bad spots of lack of hospital beds which exist to-day, the lower East and the middle West sections of Manhattan. This condition is more evident when one compares the above figures with the excess of beds in the Bellevue and Presbyterian districts, which at present are 959 and 202 respectively, and which will become in 1920 for Bellevue 1,614, and for Presbyterian 59. The excess in these two districts does much to overbalance the lack in the intervening Flower district both present and prospective.

This reports states very fully and ably the arguments in favor of a hospital of 1,000 beds and upwards as against the multiplication of 200 bed hospitals, both in regard to efficiency of administration and to economy of expenditure. But the action suggested in the report, namely, the placing of a second general hospital on the East side, and on the Island at that, does not seem to distribute the additional beds needed in the best manner. A fairer conclusion to meet the conditions would seem to favor the development of a general hospital (1,000 bed hospital) on the middle West side, rather than as proposed, a new local hospital of 100 beds, which would not even meet the present demand for lacking beds. The location of Roosevelt Hospital fits it for such a development, and

a study of the present service supports the view that there is urgently needed a hospital of at least its present size at once, and that a hospital four times its size will do no more than meet the conditions fifteen, or even ten, years from now.

The last report of the Roosevelt Hospital (1907) shows that 428 patients from the ambulance service alone were refused admission after entering the reception ward, generally because of lack of room, and that for the same reason 1,914 patients in addition were taken to other institutions, or to their homes without being brought in to the hospital at all. These two groups of cases form more than half of the actual cases treated by the ambulance in the year 1907 (2,342 out of 4,113 patients treated). In other words, an average of over six patients a day applied last year for emergency treatment by ambulance call at the Roosevelt Hospital and were refused more than the temporary treatment of the accident ward because of lack of room, and were transferred elsewhere. The hospital ambulance service averaged  $14\frac{1}{4}$  calls per day, one-fifth of which were unnecessary, to such an extent has the abuse of the hospital ambulance system grown in New York.

The service of the Roosevelt Hospital is made up not only of the sick poor from its own neighborhood, which is a district of great medical need, but it has a double source of supply from two large dispensaries, its own and the Vanderbilt Clinic of the College of Physicians and Surgeons, both of which refer all their patients needing hospital care to the Roosevelt Hospital. It also draws a large clientele because of its own reputation and of that of its attending staff from a large area outside of its own district, including the suburbs of New York and many cities even at some distance. The location is most accessible. At one of its corners there is a station of the Elevated Railroad and at the same point the cars of three surface lines pass, while a station of the subway is only one block distant, and it is in the center of a thickly populated tenement and factory district. It would seem a justifiable inference to claim for Roosevelt Hospital a manifest destiny and a future development which will make it the large general hospital for the west side of New York in contraposition to the new Bellevue which will fill the same position on the east side. This

result should follow whether or no a large pavilion hospital be built on Blackwell's Island or elsewhere.

Except for the necessary funds, the facilities at the command of Roosevelt Hospital to fulfil the plan here suggested are ample. The location of the hospital is on high ground, and on solid rock; its base is 77 feet above the Hudson River and as near that water as would be possible at any point on the west side of the city (where the location of the Hudson River R. R. tracks make a duplication of the Bellevue site at 26th St. and the East River impossible). At least in the upper stories it is near enough to feel the influence of the river breezes. The hospital site is surrounded on the east, south and southeast by comparatively low tenements so that a free access of sunlight and of the prevailing southerly winds is assured. On the west there is a High School and on the north the block is occupied by a large church and by the College of Physicians and Surgeons and its accessory buildings, the Sloane Maternity and the Vanderbilt Clinic. No material change can be expected to occur therefore, and the environment is as available for hospital uses as any city site can be which does not abut on a public park. The building of a "barrack" hospital in which the wards are located in the upper stories will overcome the most vital objections to that plan of construction, and on a site such as has been just described it will fulfil the two essentials of a healthy hospital by bringing the wards up into the sun and air. The ground plan of the hospital is a city block, 200 x 800 feet, only two thirds of which are occupied at present, and as will be developed later occupied, in part, in an inadequate manner. A "barrack" hospital of modern construction on a ground plan of this size would easily support a thousand beds.

Roosevelt Hospital today has in it all the elements which make up a large general hospital. It is a teaching hospital. It is a research hospital. It has wards devoted to medical specialties. But it is perfect in no one branch; its present equipment does not permit of any approach to even an appearance of successful endeavor to fulfil the efforts of its workers. This statement must not be taken as an arraignment of the hospital staff, either lay or professional. The best that can be done with present facilities is undoubtedly done. But Roosevelt Hospital fails to teach as well as it might because

the organization for teaching is obsolete and inadequate. It fails to accomplish the research into the newer fields of medicine and of surgery which its service would permit and should demand, because it lacks the financial ability to develop this department. It fails to give the best care, both medical and surgical, to *all* the patients who apply for aid, not that it fails to give such care to the fortunate ones who are admitted to its service, but it fails in the case of those individuals who are transferred to other institutions and who average in the ambulance service alone six in number daily. It possesses a division of gynæcological surgery but it has no department for that purest of all surgical science, the diseases of the eye. It has a special medical ward for children, but none for the equally important and equally special branch of medical work, that of neurology.

In developing Roosevelt Hospital into a general hospital of 1,000 beds all these factors must be considered. The number of specialties must be increased to include at least those mentioned above and perhaps some others, though a too close specialization must be avoided. The principal additions to the bed capacity will of course fall into the two great divisions of hospital work, the general surgical and the internal medical wards, and both of these departments require at the present time great increases to meet the demands of the present service for, as already stated, many patients are refused admission because of lack of room alone. Cases from the subsidiary dispensaries and those bringing independent admissions in addition to those of the ambulance service are often denied admission, or their reception postponed, although they may present medical and surgical conditions requiring early operation, if not immediate treatment.

The development of Roosevelt into a general hospital of 1,000 beds must be considered from the very important point of view of the buildings of the hospital. The present buildings can be divided into two groups of radical difference—those which are fireproof and those which are not. The older buildings are solidly constructed, but they are not fireproof. Some of them, notably Ward 5 (a single-storied pavilion structure), were built before the days of aseptic surgery, and with the distinct idea in mind that the building was to be tempo-

rary, because, owing to the impossibility of keeping hospitals free of contagion, especially that of wounds, it was necessary to destroy and rebuild hospital pavilions at certain intervals. Modern methods have changed all that, and modern hospitals are composed of fireproof buildings constructed of brick and iron.

Roosevelt owns two groups of buildings of the modern type today. The Syms operating theatre with the neighboring accident and children's wards on 9th Avenue and the building in the centre of the block, which contains the dispensary, the rooms for private patients and the quarters for the training school for nurses are fireproof, and should be considered as permanent. But the general ward building and the "Ward 5" pavilion could be replaced to great advantage by modern buildings, which would increase both the hospital's capacity and its efficiency.

The general plan of the hospital has grown into that of detached buildings running through the block from north to south and connected for purposes of communication and administration by a one-story corridor on the ground floor along their north or 59th Street side. This cannot be improved upon, for it embraces the best arrangement for furnishing sunlight and air to wards whose long axis is north and south. If any criticism of this plan may be offered, it is that it demands rather a large ward unit if the available space is to be given up to a single ward. This is now done in Ward 5, and has shown the advantage of economy in general administration, though, perhaps, a lack of facility in conducting the surgical service. The disadvantage in this respect can be overcome by increasing the ward attendance, even if this destroys to a certain extent the other advantage—the economy of large wards. The "barrack" style of building is an essential of hospital construction in New York City, where the cost of land is prohibitive of the one or two-story pavilion hospital, except where built by the city itself, and then only upon peculiar sites like Blackwell's Island or in suburban districts. If the separated barracks be built as is possible in the Roosevelt scheme of construction, and if the wards be placed in the upper stories of those barracks, all the advantages of the European Pavilion system will be secured, so far as light,

air and quiet are concerned, and in as perfect a manner as is possible in a thickly populated environment.

The final plans should present new barrack pavilions on the site of the "Ward 5" building and on that of the present medical and gynæcological building and two new barrack pavilions on the unoccupied land on the corner of 59th Street and 10th Avenue. It should provide for a new heating and lighting plant sufficient for the whole hospital when completed. It should provide for facilities for teaching and for research in connection with the increased medical and surgical services to be created. In practical fulfilment of this idea the present administration building could be left as it stands ; for much has been done to perfect it in the last few years, and if all patients were removed from it the room secured would probably suffice for the administration of the enlarged hospital. The general ward building also might be retained for a last substitution, because it also has been improved with new iron balconies and made as modern as is possible. But the present Ward 5 should be removed and the proposed new buildings on the western end of the site should be added as soon as the funds can be secured to build and endow them. In this new scheme of buildings certain changes and rearrangement of the departments could be secured. The details of this are developed later and need not be presented at this place. One great advantage to be gained, however, may be mentioned here, the transfer of the dispensary from its present quarters to the ground floor of the proposed pavilion on the site of Ward 5, where it could be in close relation with the present accident ward. This could then become the single reception and admitting office for the whole hospital.

Roosevelt Hospital has always been a great teaching hospital and in its early years it presented medicine and surgery to its student visitors in the best methods then known and practiced. The clinics of Sands in surgery and of Delafield and Draper in medicine were the most sought after of any in the city. But methods have changed and the teaching of to-day requires a more intimate relationship and contact on the part of the student, both with his instructor and with the patient. I have already presented to you the manner in which this is accomplished by establishing in the hospital service the

grade of clinical clerk, and I have shown the reasons why this new system acts alike for the good of the student and for the benefit of the patient. In reality I do not overstep the bounds of fact when I claim, that by no other system of hospital organization can the welfare of the patient be served equally successfully.

One point remains to be developed, the fact that the adoption of these educational methods will require the introduction of certain details in the construction of the new buildings. The addition of clinical clerks will involve a permanent increase in the working staff, demanding increased laboratory facilities and the addition of a staff record room to each ward-unit where clerical work can be done. To each division of the service there should also be added a study and work-room for the chief attending medical or surgical officer and his assistants.

The question of applying methods of scientific research to the patients of a hospital is no longer subject to questioning criticism. Such methods do not involve the old bugbear of experimenting on hospital patients, implying as it did, that such experiments were a detriment and menace to the sick and suffering. On the contrary, medical research has led not only to the better care of future patients, but also to the better understanding and treatment of the individual who is "experimented" upon. All forms of medical research are closely linked with medical teaching and require the large plants for scientific study which are to be found only in specifically endowed institutes like the Rockefeller Institute in New York and the Ayer Institute in Philadelphia, or at Columbia and other large universities. Medical research requires also many helpers in higher and lower positions, and no better assistance can be secured in the lower grades than a sufficient number of undergraduate students enthusiastic in their work, eager to learn, and under the disciplinary control of their instructors. The Roosevelt Hospital is fortunate in being situated opposite the College of Physicians and Surgeons, with its scientific establishments of pathology, bacteriology, clinical pathology, pharmacology and chemistry. The hospital has depended in the past for its higher investigations in pathology and bacteriology entirely upon the college laboratories. In the proposed



plan of creating closer relations between the two institutions this connection should be strengthened and extended to include the other departments mentioned above. The new laboratories to be created on the hospital grounds should be under the same control and supervision as the college laboratories. In other words, in all departments the same man should be responsible for the work both in the College and the Hospital. The pathologist of the Hospital, for example, should be Professor of Pathology in the College, just as the surgeons of the hospital are the professors of surgery in the neighbouring institution. That the scientific value of such departments as chemistry and pathology would be greatest in the College would be counterbalanced by the fact that the greatest reputation and importance would rest in the hospital, in the practical clinical branches such as surgery and medicine. In this way a balance would be struck and both institutions would increase the scientific renown of its ally in the study, teaching and investigation of medical art and science.

At present, there is in the Roosevelt Hospital a marked lack of uniformity in the scheme of organization of its medical and surgical staffs. No one of the four branches of medical practice which are represented in the hospital service at present has an organization similar to that of any other. Several possible varieties of organization are represented. The medical service has an attending staff of three physicians who divide the winter months between them, and relegate the summer service to a junior attending. The authority of this junior, however, is in no way less than that of his senior colleagues, except in this one particular of choice of season for work. As there are no assistants on the medical service, enforced absences from duty must be delegated by request of the physician on duty to some one of his co-equal colleagues. The two surgical services are each organized with a senior surgeon serving eight months and a junior surgeon serving four months, the latter in the summer only. There are two assistants to each division. Absences by leave (vacation, etc.) of the surgeons must be filled by another of the staff of equal grade, assistants by an assistant, attending surgeon by an attending surgeon, except that some slight latitude is allowed in that an assistant can substitute for his chief for single periods of twenty-four hours. The gynæcologi-

cal service has a single attending and a Junior attending, who can substitute for his Senior in all things and for all periods of time, subject only to the controlling wish of the Senior himself.

In these three divisions a needed elasticity is secured by extending the powers of the heads of the dispensary service, and the chiefs of clinic in medicine and gynæcology may be permitted to do duty in the wards by a vote of the visiting committee of the Board of Trustees upon each special case as it arises. The chief of clinic in surgery has recently been advanced permanently to the position of second assistant on one of the surgical divisions, to meet the increasing demands for work. The final point to be brought out is that the division for children's diseases has no attending staff of its own, but is attached to the general medical service. These details of organization are presented here because it is believed that the co-existence of all of them in one institution cannot serve for the best interests of the hospital, and it is believed that the best system is not too good for the Roosevelt Hospital and should prevail in all its divisions.

The oldest American idea of hospital organization (both medical and surgical), is the one of multiple heads serving in rotation for equal portions of the year. The arguments usually offered in favor of such a plan of service are in themselves at least in part condemnatory. The arguments are, that a change of physicians is beneficial to the individual patient, that competent physicians will not serve in the subordinate position made necessary by the plan of a single head of division, and that the rivalry of succeeding attending physicians is for the good of the service. In recent years New York has been visited by a number of eminent European physicians who have made a study of our institutions and methods, and their judgment with regard to these questions is significant. Prof. Von Noorden, for example, condemns the American rotating system of hospital service as follows:

“Excepting in the case of a very energetic and especially qualified personality, they (attending physicians) possess no satisfactory control over the service, the assistants and the nurses. They are in general more like highly esteemed guests than masters in the house.”

The only seemingly favorable criticism which I have found is by Prof. F. Müller, of Munich (who represents the most perfect development of the other extreme), in a series of "Impressions of an American Journey." Even he finds more disadvantages than advantages in this "American" system:

"This system has the advantage that many physicians are connected with the hospital, who can use their influence in behalf of the hospital and secure for themselves an incentive to and advancement of their own knowledge and ability. But the advantages which are secured to the physicians have disadvantages as well added thereto. There is lacking a uniform professional direction especially in a therapeutic sense which is more important in a surgical than in a medical sense. No one physician is responsible for the whole direction and training of the assistants and of the nursing staff, which must suffer thereby. One gets the impression from this American system that the head of the nurses training school and the interne assistant has greater influence on the conduct of the service than the attending physician possesses."

In referring to the "one man system" of Johns Hopkins, Müller expresses the opinion "that this example will find in the future a wide-spread imitative extension which will result in a distinct advantage to the hospitals."

The arguments in favor of the system of rotation are easily refuted. It is not true that equally competent physicians will not serve as assistants one to the other. The benefit of a change of physician occurring four times a year is at best of petty consideration in comparison with the daily consultation of one physician and his assistant, both of whom are conversant with the progress of every individual case. As a matter of fact the rivalry of the several members of a rotating staff is not keen. They probably are the last persons to be conscious of the comparisons passed upon them by the house staff or other critics.

The single headed division would seem to be the logical method of organization. A hospital is successful in proportion as it approaches a military discipline, and a multiheaded army is inconceivable. To compare hospital services with the work of civil life it can be asserted confidently that no successful business is conducted on such a plan. The single headed division has reached its greatest development in Europe and especially in military Germany. It has been implanted in

America, notably in Johns Hopkins and in this city in the Sloane Maternity and the Lying-in Hospital, in Mt. Sinai and in the Hospital for Ruptured and Crippled. Roosevelt has it in the Gynæcological service and had it formerly in the surgical service. No one thing ever increased the good name of the Roosevelt Hospital more than the single headed surgical service under Henry B. Sands and his remarkably talented assistants Halstead, Hall and Hartley. Such a service refutes every argument against the system. It is found wherever medicine flourishes best and is an absolute essential for any hospital which wishes to teach with the best results and to further the highest medical research. The only argument to be offered against it is that the chief of the service will neglect it and turn the work over to his assistants. The remedy is theoretically simple and lies in the hands of the Trustees. But practically it is often difficult and it is always disagreeable to apply a drastic remedy. Such neglect, however, is not confined to hospitals of single headed divisions; every hospital has suffered from such faults in individual members of its attending staff. This inefficiency on the other hand would be controlled and corrected with greater ease in a hospital which demands teaching from its attending staff. The outcry of students against neglect is more certain and more loud than that of the patients of a hospital. In fact no neglect to patients may result from the elision of the attending physician for they may be as well or even better cared for by his assistant.

The enlargement of Roosevelt Hospital, if made possible, will give an opportunity to create several divisions of equal size, each possessing the same functions. Roosevelt already has two surgical divisions, and it could with advantage add other divisions to its medical work as well. In fact an increase in work is possible in no other way. The creation of parallel and equivalent divisions will in itself accomplish the best method of developing a friendly rivalry and kindly criticism between the several attending and resident staffs. Such a rivalry, which utterly fails as between rotating services, would be the keenest possible between co-existent services, all of which have in common the three-fold endeavor — of advancing human knowledge in medicine, of

teaching students and of serving the ill and suffering patients of the institution.

The medical organization of a large general hospital of 1,000 beds would demand a clinical staff and a scientific staff, each of which would be divided into the two general subdivisions of attending, or non-resident, and subordinate, or resident. It would demand an unequal division into surgical beds, medical beds and beds for specialties. An exact partition is not possible on *à priori* grounds, but a tentative scheme for eighteen single-headed divisions may be assumed as follows :

400 surgical beds in 4 divisions of 100 beds each.

400 medical beds in 8 divisions of 50 beds each.

50 beds for a children's division.

25 beds for a gynæcological division.

50 beds for an ophthalmological division.

25 beds for a neurological division.

25 beds for a nose, throat and ear division.

25 beds for a genito-urinary division.

This variation in size is warranted by the difference in the service demanded. A surgical service should be large enough to furnish active operative material and also to supply beds for those surgical cases which require a long convalescence and but little active treatment. The large group of fracture cases are barred from most surgical wards to-day because they crowd out acute operative work. It is found in practice that 50 beds is about the limit of acute medical cases which one staff can intelligently handle. The other figures are an attempt to estimate the demand for cases in such specialties.

No mention is made here of private patients. It is believed that the only good reason for a general hospital to take care of the private patients of their attending staff is that the hospital can make money out of that end of the business. It is believed that it rarely pays a hospital to undertake such work, and it is further believed that it is wise for an attending physician or surgeon to separate his public and hospital service from his private practice. If, however, a general hospital proposes to undertake this class of service, it is

almost self-evident that the hospital should provide a special building with operating rooms for the exclusive use of this work, and a separate resident staff, who should be a paid staff. It is true that the double duty has been tried by some hospitals, and with success, and that Roosevelt is a notable example of such a hospital, but friction will result from neglect of one or the other subdivision sooner or later, and serious complications can be surely avoided only by a separation of these duties.

Each of the eighteen divisions indicated above should form a single headed staff. The surgical and medical staffs should consist of a chief attending or director; of at least four assistants, one of whom should work mainly in the out-patient department as chief of clinic. There should be a resident whose duties are at present new to New York institutions. They are described in detail below. The resident interne staff on each division could be reduced to that formerly in vogue, namely: a house, a senior and a junior serving six months in each grade, or 18 months in all. And finally there would be a group of 4th year medical students to serve as clinical clerks. The number of these should be in the proportion of one to every eight beds.

The new position of resident is required by the new positions of clinical clerks. He will have immediate oversight of the house staff in general and of those lower members of it in particular. In addition he will have general control of the admissions and discharges and on the surgical side will have a general oversight of the accident ward. Such a resident officer should be appointed for each division. It is believed that these positions would be eagerly sought by members graduating from the house staff and that many men will hold this position, if it be established, for periods of one, two or more years. This position should differ from the other positions of the interne staff in that it should be salaried. The services of the medical specialties which consist of a smaller number of beds than the general medical and surgical services would require a smaller house staff. Those services which are operative in nature, such as gynæcology and diseases of the eye, would require a single attending with only two assistants and a house staff of two serving in two grades of six months each. Clinical

clerks could be admitted to these services in the same manner as on the general wards, but perhaps in a different ratio, say, one to twelve instead of one to eight beds. The non-operative specialties, such as diseases of the nervous system, would require the two assistants for the chief attending and a house staff of perhaps a single resident, whose service might be indefinite in time and whose duties could cover both those of the resident on the general medical services and those of the regular house staff. Clinical clerks would be admitted also and in the same manner as in the general wards. The service for diseases of children, consisting of fifty beds, would require a similar organization to that already outlined for the general medical service. It is believed that the position of resident and house staff in these special services would be sought after by men who had had previous hospital training, either in general medicine or general surgery.

In addition to the clinical staff, the organization of which has just been described, there must be a scientific staff to direct and perform the work in the sciences allied to medicine which are necessary in modern practice both to further and complete the diagnosis and therapeutics of the individual case, and to carry on the medical research into the causation and study of disease. These scientific positions should in some cases be separated from the clinical staff and in some the same incumbent should hold both places. As distinguished from the clinical division there should be scientific departments of Pathology, of Clinical Pathology, of Bacteriology and of Chemistry. Each of these four divisions must have a laboratory plant in which to work and a staff of workers, who should be constantly in touch with the wards and the patients of the hospital. The relation of these scientific departments must be intimate also with the teaching of medicine. Medical research of the broadest kind can be accomplished only in connection with actual cases of disease on the one hand and with that most eager seeker for knowledge, the medical student, on the other. The relation of a hospital staff—both clinical and scientific—to the teaching staff of a school of medicine should be as intimate as possible if the best renown is to come to both. Dr. Goldwater, the superintendent of Mt. Sinai hospital, has recently written:

"I often think that the pre-eminence of Johns Hopkins among American hospitals has been won with an ease that is not creditable to other institutions. In wet-blanketing the ardor of scientific enthusiasm, in shutting their doors in the face of the research worker and its medical student, hospitals have abandoned their claims to distinction and have stunted their own growth. Sentimentality has commanded them to lock up their priceless storehouses of knowledge and medical science in America has been half starved in consequence."

To apply these cardinal principles to the case of the Roosevelt Hospital and the College of Physicians and Surgeons it must be pointed out that the heads of every division of the hospital, both clinical and scientific, should be teaching officials of the College as well. So far as the clinical staff is concerned this is now true with some minor exceptions. It should be made equally true not only of the scientific departments which already exist, but also of those which should be created and there should be no exceptions whatever, not even minor ones.

It is true that up to the present time, the work which has been done in bacteriology and in pathology for the hospital has been done very largely in the College laboratories. But the connection has been poorly organized, the link between the two institutions has been made through some minor official of the College staff. Thus while the attending surgeon of the hospital has been the Professor of Surgery at the College the pathologist of the hospital has been only an instructor, or, at most, an adjunct Professor of Pathology at the College. The bacteriology at the hospital has been done by a so-called first assistant to the hospital pathologist, who held a subordinate position in the College of instructor of pathology and had no connection with the department of bacteriology of the College at all. Of chemistry the hospital has no service whatever. Such an arrangement has led inevitably to friction in administration and at times to serious delay or even failure in securing results. The hospital has recently been presented with a new laboratory building for the housing of some of the work of this kind. Such a building is urgently needed and will supply one of the means of carrying out an ideal organization. But it should not remove from the College the burden of supplying the means of carrying on the more advanced investigations of medical research in pathology, in bacteriology and in chemistry.



Each of these departments in the hospital should be organized somewhat as follows, taking the department of pathology as an example:—Director of Pathology (the incumbent to be also Professor of Pathology in the College of Physicians and Surgeons). Assistant-Director (in charge of the Hospital laboratory) with one worker to each medical or surgical division, who should hold a combined scientific and clinical position and be known as Pathologist and Assistant Physician, or Surgeon, as the case might be. In the same way the Professors of Bacteriology and of Chemistry at the College should hold the positions of Consulting Bacteriologist or Chemist and Director of laboratory. By such a scheme the duplication of effort on both sides of 59th Street and the present possibility of friction would be avoided. The hospital would get better service from the College than now, and the College would continue to do for the hospital, in a more feasible manner, the work for their mutual benefit which it is now doing, and which it is glad to do.

The financial side of this question presents several important features. From its fixed resources Roosevelt Hospital is to-day unable to meet the demands of the present service as at present administered. The hospital is working at an annual deficit of from \$8,000 to \$15,000. This has been met of late years by donations from its friends, prominent among whom are certain of the Trustees. In addition to this deficit the hospital is seriously threatened with a further deficit from the collection of taxes upon its income-bearing real estate. If this burden is to be added to the hospital liabilities, an additional annual income of at least \$12,000 must be furnished in order to bring the hospital upon an even balance. The hospital needs, therefore, in order to meet its present emergencies, an added annual income of at least \$25,000, which represents an investment of \$500,000 at 5%.

This sum, however, is a mere nothing compared to the amount of money which is needed to develop Roosevelt Hospital upon the plans as above outlined. The following pages will show what is needed for the construction of the completed hospital; for the endowment of its economic departments to take care of the daily needs of the patients and the staff; for the support of the teaching and research staff organizations

which have been described in detail in the preceding pages. A study of these estimates shows that the ultimate development of the Roosevelt Hospital into a general hospital of 1,000 beds with the necessary modern equipment for medical research for teaching and for scientific care of its patients will require \$16,500,000. Of this large sum \$500,000 is needed to meet the immediate needs of the present plant, and \$6,000,000 to secure to the hospital the development and enlargement which is urgently required at the present time. If this latter sum can be secured the hospital will take its place at once among the great hospitals of the world, and in the first rank of such hospitals.

In regard to the expenditure of so large a sum of money as the total (\$16,500,000), which is asked for to convert Roosevelt Hospital into the West side general hospital of New York City, it is interesting to compare it with the amount which it is proposed to expend upon Bellevue Hospital, the proposed general hospital of the East side of New York. Bellevue Hospital is being converted from a 1,000 bed hospital to a 2,000 bed hospital upon the modern basis of construction, which involves its entire rebuilding and the destruction of all of the old plant. This will cost in the neighborhood of ten million of dollars, and not a single dollar is being provided for endowment. The maintenance of the hospital will continue to be met from the annual taxes of the city. In the case proposed for Roosevelt Hospital a sum of only half as much again will convert a 200 bed hospital to one of a 1,000 beds and there will be provided, not only the entire plant but a laboratory system for the furthering of medical knowledge, both in research and in teaching, and in addition the entire endowment necessary for adequate maintenance.

These ideas are being presented to you in the hope that they may interest prospective donors to contribute to the development of medical education in the City of New York on a plane commensurate with the importance and dignity of the position of the city in the United States.

The financial questions involved in bringing about the development of Roosevelt Hospital as outlined above include the securing of funds for three distinct purposes:

- I. Building funds to erect the new buildings of the proposed enlarged hospital.
- II. Endowment funds to provide the ordinary maintenance of hospital beds, including all expenses except those to be strictly considered as educational and scientific.
- III. Endowment funds to provide for the establishing of a proper system of medical education and medical research.

1. The new buildings required by the suggested plans would naturally consist of three buildings of about the size and shape of the present hospital structure known as the "Pay-patient Pavilion." One of these new buildings would be placed on the site of the present "Ward 5" and the two others on the vacant land on the western end of the hospital property. These "barrack" pavilions would be made up in large part of ward units, though some part of the most westerly one would contain a new hospital stable and hospital morgue, and perhaps a medical teaching plant similar to the Syms pavilion, which is designated for surgical educational purposes. It is believed that each of these buildings would cost about \$250,000, irrespective of the peculiar uses to which it might be put. The completed hospital would need also an enlarged heating and lighting plant, with an enlarged building therefor. If this is to be placed in the position of the present installation it might demand the destruction of the medical ward building. This is an old non-fireproof structure, which could profitably be removed to give place to a new building constructed on modern lines. It is probable that this change could be effected also at an expense of \$250,000. Until some skilled architect has drawn the plans and specifications it is impossible, of course, to state accurately the amount of money needed for building purposes, but it seems fair to assume that \$1,000,000 would suffice to convert the present 250-bed Roosevelt Hospital into a modern institution of 1,000 beds, so far as the mere matter of iron, bricks and mortar is concerned.

2. The largest item of every hospital foundation is the funded endowment needed to meet the annual running expenses.

The Roosevelt Hospital has been caring for its patients for several years past at the rate of from \$2.23 (1906) to \$2.28 (1907) per patient per day, after deducting the necessary expenses for running the accident and dispensary services. The expenses of supporting a hospital are continually increasing both from greater demands of medical and surgical treatment and from increasing cost of wages and supplies. I have for the purposes of this estimate taken \$2.50 as the total charge against the single "patient-day" item when all expenses are included. While this figure (\$2.50) is perhaps too low for present estimates on the Roosevelt Hospital of today, the relative expense of a 1,000 bed hospital would be slightly reduced because the additional expenses for dispensary and accident ward are more or less fixed and do not increase proportionately with the increase in the size of an hospital. Two dollars and a half, therefore, may be considered a fair estimate of the running expenses of a hospital, per bed per day, for the immediate future. This figure as a basis of bed endowment for the Roosevelt Hospital is subject to a 12% reduction because experience proves that only 80% of its hospital days-care are free and that the hospital is paid by the patients about 60% of the running expenses on 20% of the service.

On this estimate each bed will cost per day \$2.20 and per year \$803. Roosevelt Hospital already possesses an income by which it supports 239 beds (of which 39 are for private patients) with a deficit of about \$25,000. The additional endowment therefore, needed by Roosevelt Hospital, should it become a 1,000 bed hospital, consists of two items:

I.	To meet the present deficit of \$25,000 per year requires at 5%.....	\$500,000
II.	To endow 800 beds with an individual income of \$803 per annum requires \$16,060 per bed or an income of \$642,400, which is 5% on.....	12,848,000
	or a total endowment additional to present resources of.....	<u>\$13,348,000</u>

These figures show the absurdity of the position of most New York hospitals which today still offer to endow a bed in

perpetuity for \$5,000, although that bed requires for its maintenance the income of \$16,060.

3. The endowment of a proper system for teaching and scientific research requires an endowment which will be best understood if developed upon a divisional basis. The question of salaries for the clinical workers in hospital services has been brought forward during the past year in the discussion on hospital organization held before the Mayor's Commission. It seems wise for present purposes to assume that the whole attending staff, both directors of divisions and assistants who shall have the privilege of private practice shall continue as heretofore to serve the hospital without salary, except insofar as the College pays for their teaching work. Those assistants, however, who perform scientific work both in research and diagnosis, and who devote practically all their time to the work, should be paid by the Hospital or the College, or by both combined. Each of the eighteen divisions would require a salaried and unsalaried staff, as follows :

A sample Medical Division would be organized as follows :

	SALARY FROM HOSPITAL
Director (Professor in the College, either of medicine or clinical medicine).....	None
1st assistant and attending physician.....	None
2d assistant and attending physician to Dis- pensary (Chief of Clinic) .....	None
3d assistant and pathologist.....	\$2,400
4th assistant and bacteriologist.....	2,400
Resident physician.....	1,200
Interne staff: house physician.....	None
senior     "     ... ..	None
junior     "     ... ..	None
Clinical clerks .....	.4th year students

The educational budget for a medical division would be \$6,000, and there are contemplated eight such divisions. The total income for the medical service should be \$48,000, or the income on \$960,000.

A sample Surgical Division would vary a little, but only a little, from that of the Medical Division, as follows:

	SALARY FROM HOSPITAL
Director (Professor in College of surgery or clinical surgery.....	None
1st assistant and attending surgeon.....	None
2d assistant and attending surgeon to Dispens- ary (Chief of Clinic).....	None
3d assistant and registrar .....	\$1,000
4th assistant and pathologist.....	2,400
5th assistant and bacteriologist.....	2,400
Resident Surgeon.....	1,200
Interne staff: house surgeon.....	None
senior     “     .....	None
junior    “     .....	None
Clinical clerks.....	4th year students

The surgical division requires one assistant more than the medical and its budget is higher, \$7,000; there are, however, but four such divisions. The total income for surgical service, therefore, is \$28,000 or the interest on \$560,000.

The Special Services would be organized thus:

Operative services—(Gynæcology, eye, throat and ear and genito-urinary surgery).

Non-operative services (neurology, children).

	SALARY FROM HOSPITAL
Director (Professor in College in specialty represented) .....	None
1st assistant and attending specialist.....	None
2d assistant and attending specialist to Dispens- ary (Chief of Clinic).....	None
3d assistant and pathologist and bacteriologist.....	\$2,400
Resident specialist.....	1,000
Interne staff: house specialist.....	None
junior     “     .....	None
Clinical clerks.....	4th year students

This budget of \$3,400 per division must be multiplied by six and the resulting \$20,400 is the income on \$408,000.

The scientific work would require an oversight by a group of higher officials than the ones just mentioned as delegated to the several divisions. The scientific divisions should be linked to the similar departments in the College and College laboratories should be used for the greater and more general problems while the Hospital laboratories should be the place for routine diagnosis work and for subjects of investigation of lesser importance.

SALARY FROM  
HOSPITAL

In Pathology there should be a Director and consulting Pathologist (the Professor of Pathology at the College)..... None  
1st assistant and pathologist.....\$3,000  
who should over-rank the clinical ward workers and have charge of the hospital laboratory.

The laboratory should have a "Diener"..... 720

And a supply fund. .... 1,200

The same establishment must be provided for Bacteriology, for Clinical Pathology and for Chemistry, and the annual budget of \$4,920 must be multiplied by four to make \$19,680, which is the interest on \$393,600.

To summarize these items the total sum needed amounts to \$16,669,600, divided as detailed above as follows:

For new buildings.....	\$1,000,000	\$1,000,000
Endowment for hospital expenses to meet present deficit.....	500,000	
To endow 800 new beds at \$16,060 per bed.....	12,848,000	13,348,000
Endowment for teaching and medical research:		
8 Medical divisions at \$120,000 each .....	960,000	
4 Surgical divisions at \$140,000 each .....	560,000	
6 Special divisions at \$68,000 each. ....	408,000	
4 Laboratory services at \$98,400 each .....	393,600	
		<hr/>
		\$2,321,600
Total .....		<hr/>
		\$16,669,600

Of this large sum \$500,000 is needed to meet the deficit in the present running expenses; \$1,000,000 for new buildings; \$12,848,000 to furnish the endowment for the additional work in the wards and \$2,321,600 to supply the funds for teaching and medical research both in the present hospital and in the additions to be built.

It is desirable to consider these propositions from the standpoint of the separate services in order that a correct idea may be had of what portions of the total amount may be necessary for urgent use, what parts may be desirable but not immediately needed for present development, and what proportion of the whole may conveniently and properly be left to the future extension of the hospital plant. Such a presentation also will serve as a useful index to direct the proposed gifts of any prospective donor of funds to the hospital. On studying the various items from this point of view the following facts may be stated:

Each completed clinical division would require the following endowment, apart from the necessary buildings:

A Medical Service of 50 beds would require an endowment as follows:

For Hospital bed endowment.....	\$803,000
For teaching and research.....	120,000
	<hr/>
	\$923,000

To endow a Surgical Service of 100 beds would require the following amount of money:

For Hospital bed endowment....	\$1,606,000
For teaching and research.....	140,000
	<hr/>
	\$1,746,000

For a Special Service of 50 beds (e.g., Eye, Children) the following sums are needed:

For Hospital bed endowment.....	\$803,000
For teaching and research.....	68,000
	<hr/>
	\$871,000



For a Special Service of 25 beds (e.g., Throat and ear, Genito-urinary, Gynæcology, Neurology) the needed endowment amounts to:

For Hospital bed endowment . . . . .	\$401,000
For teaching and research . . . . .	68,000
	<hr/>
	\$469,000

The present demands upon the service at Roosevelt Hospital require an enlargement of the plant to about double its present size. To fulfil these present needs for charitable ends, for teaching and for research, the following five items of the total foundation of \$16,000,000 proposed above are urgently needed:

- I. The four laboratory services at \$98,400 each would require a total endowment of . . . . . \$393,600
- II. The endowment to meet the present deficit is . . . . . 500,000
- III. The erection of at least one of the proposed new "barrack" pavilions, preferably the one to replace the "ward 5" building, requires . . . . . 250,000
- IV. The endowment of 255 additional beds at \$16,060 each to meet the present demands for hospital facilities, amounts to . . . . . 4,095,300
- V. The endowment of the teaching and research staffs for the eight divisions created by the above additions is, in detail, as follows:
 

4 medical divisions at \$120,000 each, or . . . . .	\$480,000
2 surgical divisions at \$140,000 each, or . . . . .	280,000
2 special divisions (Children, Gynæcology), at \$68,000 each, or . . . . .	136,000
	<hr/>
and would make a total sum of . . . . .	\$896,000

These five items, forming the urgent needs of Roosevelt Hospital to-day, present a total sum of \$6,134,900, to be secured in order to carry out the plans for modernizing the methods of teaching and research now in vogue, and for meeting the demands for charity now being made on the hospital.

The present hospital facilities provide approximately 250 (actually 238) beds, divided into two surgical divisions of 44 beds each. One medical division of 70 beds, one gynæcological division of 29 beds, one children's division of 12 beds (part of the medical service) and private patients beds amounting to 39.

These five divisions should be standardized as to beds on the basis detailed above, with the possible exception of the children's service. But it would seem wise to have the number on this children's service (12) increased to 25, and it should be separated from the general medical service.

The additional endowment of 255 beds would complete the surgical divisions to an 100 bed standard, the medical service to 4 divisions of 50 beds each; the gynæcological service would be left intact and the children's service would be made a special service of 25 beds, which would be half that proposed for the final establishment.

In an original appeal on this subject which was formulated on May 19, 1905, it was suggested that one million dollars would secure the advantages for teaching which in the present statement is placed at six times as much. The original plan was to enable the College and the Hospital to use the present hospital plant for medical teaching upon the best modern methods. The study of the whole situation has developed the facts that the present hospital plant is about half the size it must be to meet its philanthropic task; and further, that medical research cannot be divorced either from the general hospital or from the teaching institution. The demand for six millions instead of for one million dollars is made necessary, therefore, by the urgent present requirements for an hospital of twice the size of the present Roosevelt for teaching facilities and for a teaching staff in the enlarged institution and for a thoroughly equipped research plant in connection with both. In other words, medical education at the College

of Physicians and Surgeons and at the Roosevelt Hospital demands both the million dollar fund needed to develop the present Roosevelt and the five million dollar "University Hospital" to be added to the present Roosevelt, both of which were specifically mentioned in the appeal of May 19, 1905, already referred to.

The addition at the present time of special services other than those of children and gynæcology is a less urgent necessity than the endowment of the general surgical and medical services to a complete total of 200 surgical beds, 200 medical beds and the addition of the much needed laboratory services. The endowment for these additional special services would be, as already stated, \$871,000 for a service on the eye, and \$469,500 for each of the others suggested. At the present time there is no question but that these special services are more important from a College point of view than from a Hospital point of view. They could undoubtedly be filled with patients but unless the funds are provided by special endowment they should not be considered at the present time. Whenever these specialties are added to the hospital foundation, a further demand must be made upon the proposed building funds, probably to involve the equipment of one of the \$250,000 "barrack" pavilions. The remainder of the total expenditures of \$16,669,600 will be needed ultimately for the development of the service, the establishment of an additional 200 surgical beds and 200 medical beds, with the appropriate buildings.

This detailed statement of expenditure needed for the development of Roosevelt Hospital if adopted by the hospital will give, it is hoped, an index for prospective donors of funds desiring to advance medical education and research whereby they may select the particular line of work which they may wish to foster with the knowledge that the work will be carried on in an institution where the best possible results may be assured, and in that their benefactions may be for all time available for the sick poor in New York City, for medical education in the whole country and for medical research in the civilized world.

It is earnestly hoped that this presentation of the relation of medical education and research to hospital organization

may assist your Committees in their work, and it is hereby respectfully submitted.

SAMUEL W. LAMBERT,  
*Dean.*

COLLEGE OF PHYSICIANS AND SURGEONS,  
MEDICAL DEPARTMENT OF COLUMBIA UNIVERSITY,  
Wednesday, November 25th, 1908















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